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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Motoya Iwasaki

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EXAMINER

MUI, GARY

ART UNIT

PAPER NUMBER

2616

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 10/642,614	Applicant(s) IWASAKI, MOTOYA	
	Examiner Gary Mui	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8-11 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8, 10 and 11 is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6 is/are rejected.
- 7) ☒ Claim(s) 5 and 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 6/21/07 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Response to Amendment

1. Claim 7 has been cancelled as indicated by the amendment dated June 21, 2007.
2. Claims 1 – 6 and 8 and newly added claims 9 – 11 are now pending.

Drawings

3. The drawings were received on June 21, 2007. These drawings are acceptable.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
3. Claims 1 – 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Long et al. (US 5,710,990; hereinafter “Long”) in view of Birchler (US 5,287,387).

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For claim 1, Long teaches an amplitude converter which calculates an amplitude value of an input signal; a peak detector which detects, peak time when a maximum amplitude value appears and an amplitude value at the peak time as a peak value (see column 3 lines 23 – 25, see figure 1 box 44); a delay circuit which delays the input signal such that the peak time output from the peak detector coincides (see column 2 lines 8 – 18, see figure 1 box 32, 34). Long fails to teach a determination unit which detects, as a detection interval, an interval in which the amplitude value exceeds a threshold, on the basis of a preset threshold and the amplitude value of the input signal; a window filter which generates a window function for limiting the amplitude value to a value not more than the threshold by using the peak value output from the peak detector; and a multiplier which multiplies an output signal from the delay circuit by the window function. Birchler from the same field of endeavor teaches an effective PAR (peak-to-average ratio) control without the generation of significant splatter. The method involves a windowed-clipping algorithm that provides a low-splatter mechanism of reducing signal peaks by applying an attenuating window, such as an inverse Hanning window, to a limited number of signal samples centered at the peak of a signal above a clip threshold. A timing diagram of an input signal having a local maximum at time T_{max} above a predetermined clip threshold. Because any signal value above the clip threshold causes a power amplifier to operate in its non-linear region, resulting in splatter, the maximum signal input to the power amplifier is clipped to the clip threshold (see column 1 line 65 – column 2 line 11) and the multipliers applying the attenuation window to the input signal $t(n)$ resulting in the output signal $t_w(n)$, which is at or below T_{clip} (see column 3 lines 29 – 31). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was

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made to add the determination unit, window filter and multiplier as taught by Birchler into the peak-to-average power adjuster as taught by Long. The motivation for doing this is that by restricting when to search for the peak into a certain interval the whole circuit will be more efficient.

For claim 2, Long teaches all of the claimed subject matter and an amplitude comparing section which compares the preset threshold with the amplitude value of the input signal (see column 3 lines 35 – 38). Long fails to teach an interval detecting section which detects an interval in which the amplitude value exceeds the threshold. Birchler from the same field of endeavor teaches that there are two modes of operation of the windowed-clipping algorithm, variable and constant. If $|p(n)|^2$ is greater than T_{clp} , but less than T_{sat} (criterion 1), and is determined to be a local maximum (criterion 2), a variable window calculation is triggered. Thus, the two conditions that trigger a variable window calculation are: 1) $T_{sat} < |p(n)|^2 < T_{clp}$ and 2) $|p(n)|^2 \geq |p(n-1)|^2$ and $|p(n)|^2 \geq |p(n+1)|^2$. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to the determination unit with an interval detecting section as taught by Birchler into the peak-to-average power adjuster as taught by Long. The motivation for doing this is that by restricting when to search for the peak into a certain interval the whole circuit will be more efficient.

For claim 3 and 4, Long teaches all of the claimed subject matter and a delay circuit delays the input signal such that the peak time coincides with the center of the correction interval (see column 3 lines 8 – 18, see figure 1 box 32, 34). Long fails to teach the window filter outputs a window function which exhibits a value of 1 before and after a preset correction interval longer than the detection interval and makes a value at the center of the correction

interval proportional to the reciprocal of the peak value and the window filter outputs a window function exhibiting a value which is 1 until the peak value and becomes not more than a value (threshold/peak value) at the center of the correction interval after the peak time. Birchler from the same field of endeavor teaches the two conditions that trigger a variable window calculation are: 1) $T_{sat} < |p(n)|^2 < T_{clp}$ and 2) $|p(n)|^2 \geq |p(n-1)|^2$ and $|p(n)|^2 \geq |p(n+1)|^2$ and from figure 2 we can see that the window value is 1 before and after the correction interval.

For claim 6, Long teaches a threshold input section which inputs a threshold to the determination unit (see figure 1 box 56, threshold detector, the threshold found here will be feed to the determination unit of Birchler).

Allowable Subject Matter

4. Claims 5 and 9 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Claims 8, 10, and 11 are allowed.

Response to Arguments

6. Applicant's arguments filed June 6, 2007 have been fully considered but they are not persuasive.

In regards to the entire contents of the remarks, the applicant argues that the Birchler reference (US 5,287,387) does not teach a determination unit which detects, as a detection

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interval, an interval in which the amplitude value exceeds a threshold. The examiner respectfully disagrees. The Birchler reference teaches the use of an attenuation window in which it will use to limit the number of signals above a clip threshold (see column 1 line 65 – column 2 line 4). Therefore, claims 1 and 2 are rejectable under Long in combination of Birchler.

In regards to the entire content of the remarks, the applicant argues that the Birchler reference does not teach the window function “exhibits a value of 1 before and after a preset interval longer than the detection interval” and the window function “exhibits a value which is 1 until the peak value and becomes not more than a value (threshold/peak value) at the center of the correction interval after the peak time”. The examiner respectfully disagrees. The Birchler reference teaches in figure 2 that the window function value exhibits a value of 1 before and after the interval and they are longer the detection window and during the peak value the window is an inverted Hanning window. Therefore, claim 3 and 4 is rejectable under Long in combination of Birchler.

In regards to the entire content of the remarks, the applicant argues that the Long reference does not teach “a threshold input section which inputs a threshold to said determination unit”. The examiner respectfully disagrees. The Long reference teaches in figure 1 a logic decision (box 54) unit that takes input from the threshold detector (boxes 56 58 60 62) to make a determination.

Conclusion

7. **Examiner's Note:** Examiner has cited particular paragraphs or columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary Mui whose telephone number is (571) 270-1420. The examiner can normally be reached on Mon. - Thurs. 9 - 3 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

GM

09/19/2007


RICKY Q. NGO
SUPERVISORY PATENT EXAMINER